

KOREAN INDUSTRIAL STANDARD

KS C 4806-1989

Series Reactors for High Voltage Power Capacitors

1. Scope

This Korean Industrial Standard covers series reactors (hereinafter referred to as "reactors") that are intended to reduce the waveform distortion of circuit voltage, as well as, to suppress the rush current at closing of capacitors or capacitor banks (hereinafter referred to as "capacitors") inserted in series with high voltage or extra-high voltage power capacitors. The conditions under which reactors are used are as follows.

Ambient Temperature	-20 to +40°C
Mean Ambient Temperature for 24h	+35 °C max.
Altitude	1000 m max.

2. Definitions

For the purposes of this standard, the following definitions apply:

Related Standards :

KS C 2301 Electrical Insulating Oil

(1) **circuit voltage**

The voltage of a circuit to which the reactor is connected in combination with the capacitor.

(2) **rated voltage**

The voltage which appears between both ends of a winding in one phase, when the rated current of rated frequency is passed.

(3) **rated current**

The rated current of the capacitor to be connected in series with the reactor for service.

(4) **rated capacity**

The product (apparent power) of the rated voltage and the rated current. The rated capacity of a three-phase reactor shall be expressed as threefold product of the rated voltage and the rated current.

3. Ratings

3.1 Rated Voltage

The rated voltage of three-phase reactors shall be 6 % of $\frac{1}{\sqrt{3}}$ of the circuit voltage, and shall have the values given in Table 1. However, these requirements are not applicable to reactors which are used in single-phase circuits.

Table 1

Unit : V

Circuit voltage	Rated voltage
3300	114
6600	229
11400	395
22000	762
22900	793
33000	1140
66000	2290
77000	2660

3.2 Insulation Levels

The insulation levels shall be expressed in numbers as follows.
For reactor to be set up on an insulated frame, however, those requirements need not be fulfilled.

3A, 3B, 6A, 6B, 10, 20, 30

3.3 Rated Frequency

The rated frequency of reactors shall be 60 Hz only.

3.4 Number of Phases

The phases shall be single phase or three phases.

3.5 Rated Current

The rated current shall be calculated from the rated voltage and the rated capacity of the capacitor used in combination with reactor, by means of the following formulae:

Single-phase reactor:

$$\text{Rated current(A)} = \frac{\text{Rated capacity of capacitor (kVA)} \times 10^3}{\text{Rated voltage of capacitor (V)}}$$

Three-phase reactor:

$$\text{Rated current(A)} = \frac{\text{Rated capacity of capacitor (kVA)} \times 10^3}{\sqrt{3} \times \text{Rated voltage of capacitor (V)}}$$

3.6 Rated Capacity

The rated capacity shall be as shown in Table 2.

Table 2

Unit : kVA

Capacity of Threephase capacitor		50	75	100	150	200	250	300	500	750
Capacity of reactor	Single- phase	—	—	—	—	—	—	—	—	—
	Three- phase	3	4.5	6	9	12	15	18	30	45

Capacity of Threephase capacitor		1000	1500	2000	2500	3000	4000	5000	6000	7500
Capacity of reactor	Single- phase	—	—	40	50	60	80	100	120	150
	Three- phase	60	90	120	150	180	240	300	360	450

Capacity of Threephase capacitor		10000	15000	20000	25000	30000	40000	50000	60000	80000
Capacity of reactor	Single- phase	200	300	400	500	600	800	1000	1200	1600
	Three- phase	600	900	1200	1500	1800	2400	3000	3600	4800

4. Construction

4.1 General Construction

Reactors shall be so constructed that it permits easy handling and has sufficient strength for practical use.

4.2 Construction of Insulation

Reactors, if they are of iron core type, shall be so construc-